

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALEXANDER GANIN

Appeal No. 2004-1002
Application No. 09/682,001

ON BRIEF

Before KIMLIN, WARREN and DELMENDO, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 2, 5-7, 9-21 and 23.

Claims 1 and 10 are illustrative of the claimed invention and a copy of these claims is appended to this decision.

The examiner relies upon the following references as evidence of obviousness:

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Sata	5,412,702	May 02, 1995
Tam	5,717,732	Feb. 10, 1998
Khutoryansky et al. (Khutoryansky)	5,734,694	Mar. 31, 1998

Appellants' claimed invention is directed to a method for acquiring digital x-ray images using a servo-toma function. During exposure, a motion controller moves the x-ray tube and detector at different speeds and distances. The motion controller may also change the angle of the x-ray tube relative to the detector. In the claimed method, first and second preparation positions are calculated for both the x-ray tube and the detector, which first and second positions are located at opposite ends of the scan ranges. After a first x-ray image is obtained while the x-ray tube and detector are moved over a first scan range, the x-ray tube and detector are moved to the second positions where a second x-ray image is acquired while the x-ray tube and detector are moved in directions opposite to the direction of travel during the acquisition of the first x-ray image.

Independent claim 10 is directed to a method for simultaneously displaying a series of digital x-ray images.

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Appealed claims 1, 2, 5, 9 and 23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Khutoryansky.

Claims 6, 7 and 10-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Khutoryansky in view of Tam and Sata.

Appellant submits at page 10 of the brief that "[t]he claims stand or fall together respecting the issues on appeal". Accordingly, claims 11-21 stand or fall together with independent claim 10.

We have thoroughly reviewed the respective positions advanced by appellant and the examiner. In so doing, we concur with the appellant that the examiner has not established a prima facie case of obviousness for the method defined in independent claim 1. However, we agree with the examiner that the subject matter of independent claim 10 would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will not sustain the examiner's § 103 rejections 1, 2, 5-7, 9 and 23, but we will sustain the examiner's § 103 rejection of claims 10-21.

We consider first the examiner's rejection of claim 1.

Although Khutoryansky does not expressly disclose acquiring digital x-ray images, we do not subscribe to appellant's position that displaying the x-ray images acquired by Khutoryansky in digital format would have been unobvious for one of ordinary skill in the art. As evidenced by Sata, the digital display of such imagery was known in the art at the time of filing of the present application. However, we agree with appellant that Khutoryansky does not teach or suggest calculating first and second positions for the x-ray tube and detector that are located at opposite ends of the scan range and moving the x-ray tube and detector to the second positions before acquiring the second x-ray image. While the reference teaches that the system returns to the center position after each tomographic exposure, claim 1 on appeal does not preclude such a center positioning before moving the x-ray tube and detector to the second position. However, Khutoryansky fails to teach or suggest moving the x-ray tube and detector to positions corresponding to the presently claimed second position after the center positioning. All that can be gleaned from Khutoryansky regarding second and subsequent x-ray exposures is that the x-ray tube and detector are returned

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to its initial HOME position after being placed at the center position. We agree with appellant that while the HOME position may be either at the head or the foot of the patient, the reference does not teach that the HOME position changes during multiple exposures.

The examiner sets forth the following rationale at page 8 of the answer:

When acquiring a series of medical images it is essential to perform the imaging as quickly as possible because movement of the patient or movement of organs within the patient during the procedure could result in faulty images and erroneous diagnosis. For this reason, it is common practice to minimize scan time by scanning a patient alternately beginning at opposite ends of the table (ie the end of one scan is the beginning of the next scan). To always start a scan from the head end of the table as appellant argues Khutoryansky does would take twice as much time and would likely yield misleading images.

However, while the examiner's reasoning has a certain logical appeal, it is in contradistinction to the specific teaching of Khutoryansky of returning the system to the center position after each tomographic exposure.

Since claims 6 and 7 depend on, and further limit, claim 1, we will also not sustain the examiner's rejection of claims 6 and 7 under 35 U.S.C. § 103.

The rejection of independent claim 10 is another matter. The method recited in claim 10 does not include any of the moving of the x-ray tube and detector between first and second positions. Claim 10 simply requires the simultaneous displaying of digital x-ray images that are acquired in a series of imaging steps. We agree with the examiner that Khutoryanski fairly teaches acquiring a series of images corresponding to different angular slices of interest, as does Sata, and we find that it would have been obvious for one of ordinary skill in the art to employ conventional digital imagery for displaying the acquired series of images. To display digital x-ray images simultaneously is taught by Sata, even though the simultaneous display is of a scanogram and an x-ray CT image. In our view, based on the collective teachings of the applied references and the state of the prior art, it would have been obvious for one of ordinary skill in the art to digitally display either a single x-ray image or a plurality of x-ray images taken in sequence. In re Keller, 642 F.2d 413, 426, 208 USPQ 871, 881 (CCPA 1981). We note that appellant bases no arguments upon objective evidence of nonobviousness, such as unexpected results, in order to rebut the inference of obviousness.

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In conclusion, based on the foregoing, the examiner's rejection of claims 1, 2, 5-7, 9 and 23 is reversed, whereas the rejection of claims 10-21 is sustained. Accordingly, the examiner's decision rejecting the appealed claims is affirmed in part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
CHARLES F. WARREN)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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ROMULO H. DELMENDO)	
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APPENDIX
Claims 1 & 10

1. A method for acquiring digital x-ray images, said method comprising:

identifying scan parameters designating slices of interest from a patient anatomy;

calculating scan ranges for each of said slices, said scan ranges corresponding to distances traveled by each of a detector and x-ray tube while said x-ray tube exposes said detector to radiation;

calculating first and second preparation positions for each of said x-ray tube and detector, said first and second preparation positions being located at opposite ends of said scan ranges and corresponding to a distance traveled by said x-ray tube and detector, said x-ray tube not exposing said detector to x-rays while moving through said preparation positions;

moving said detector and x-ray tube to said first detector and x-ray tube preparation positions, respectively;

acquiring a first x-ray image with said detector while moving said detector in a first direction over a first detector scan range and moving said x-ray tube in a second direction over a first tube scan range, said second direction differing from said first direction, said first x-ray image being acquired based on said scan parameters;

moving said detector and x-ray tube to said second detector and x-ray tube preparation positions, respectively; and

APPENDIX (cont.)

acquiring a second x-ray image with said detector while moving said detector in said second direction over a second detector scan range and moving said x-ray tube in said first direction over a second tube scan range, said second x-ray image being acquired based on said scan parameters.

10. A method for displaying digital x-ray images in a multi-image format, said method comprising:

identifying scan parameters designating multiple slices of interest from a patient anatomy;

acquiring a series of images with a digital x-ray detector, each image in said series of images corresponding to a slice of interest;

displaying images simultaneously as each image in said series of images is acquired; and

after acquisition and simultaneous display of said each image in said series of images, halting said acquiring step until reinitiated by an operator.